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SPECTROSCOPY AND PHOTOGRAPHY OF SOUTHERN HEMISPHERE QUASAR IDENTIFICATIONS

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Spectra have been obtained of a number of blue stellar objects selected from lists (**1**–**5**) of suggested optical identifications of Southern Hemisphere radio sources, resulting in the confirmation of four quasars. Some objects from the lists were also examined using two colour (*U*, *B*) photography. Two of the four quasars confirmed spectroscopically were also examined photographically and found to have ultra-violet excesses. A fifth object also has an ultra-violet excess and is therefore probably a quasar, but has proved too faint for spectroscopy. The results for these five objects are summarized in Table I, including the redshift z if measured.

TABLE I

Object	Reference	Quoted magnitude	Conclusion	
			Photography	Spectroscopy
0743–67	(3)	17	—	Quasar, $z = 0{\cdot}395$
1116–46	(2)	17	—	Quasar, $z = 0{\cdot}71$ (one line)
1355–41	(4)	16	Ultra-violet excess	Quasar, $z = 0{\cdot}313$
1421–38	(4)	17·5	Ultra-violet excess	Quasar, $z = 0{\cdot}41$ (one line)
1424–41	(4)	17·5	Ultra-violet excess	—

TABLE II

Objects	Number of plates	Observed wave lengths λ	Computed rest wave lengths $\lambda/(1+z)$	Line identification	Notes
0743–67	2	3890	2789	Mg II λ 2798	s, b
		4790	3434	[Ne V] λ 3426	s, b
		5204	3730	[O II] λ 3727	
1116–46	3	4773	—	Mg II λ 2798	ss, bb
1355–41	2	3690	2809	Mg II λ 2798	ss, bb
		3904	2972	[Ne V] λ 2974	
		4494	3422	[Ne V] λ 3426	
		4902	3732	[O II] λ 3727	
		5710	4347	Hγ λ 4340, [O III] λ 4363 blend	not used in calculating z
		6366	4847	Hβ λ 4861	
		6506	4954	[O III] λ 4959	
		6577	5008	[O III] λ 5007	
1421–38	2	3940	—	Mg II λ 2798	s, b

s: strong ss: very strong b: broad (> 40 Å) bb: very broad (> 80 Å)

The spectra were taken at 140 Å mm^{-1} on the image tube spectrograph of the Radcliffe Observatory 1·88 m (74-inch) reflector, using an RCA Carnegie image tube. The objects 1116–46 and 1421–38 show only one emission line, which has been assumed to be the strong line Mg II λ 2798. Any alternative line identification would imply the appearance of further strong lines in the observable spectral range (λ 3200–λ 6800). The measured wavelengths of all emission lines are listed in Table II together with notes on strengths and widths.

Spectra of the following suggested identifications show them to be foreground stars: 2154–18 (**1**); 0903–57 (**2**); 0035–39, 1018–42, 1031–40, 1459–41, 1830–39, 2226–38, 2250–41, 2259–37 (**4**); 1302–49 (**5**). Two of these objects, 1018–42 and 1459–41, were also examined photographically and showed no ultra-violet excess.

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